opposing arrays will be the same to provide a rectangular or square frame. In a preferred embodiment the individual light emitting devices are Organic Light Emitting Diodes (OLEDs) that emit in the infrared (IR) band. For example, the OLEDs may be doped with rare earth ions such as neodymium or erbium. The touch input system **10** also includes a light detecting device (D_1, D_2, D_3, and D_4) positioned at each corner of the frame. In the preferred embodiment, the detecting devices are IR detectors such a silicon phototransistors. The touch input system also includes a light transmissive prism (P_1, P_2, P_3, and P_4) positioned along each array E_1, E_2, E_3, and E_4, respectively.

[**0014**] Each of the individual OLED elements of each array are electrically connected to a controller system (not shown) which enables one to individually activate each of the elements. In some embodiments this controller system is comprised of a combination of circuit elements dedicated to the touch system function as well as circuit elements supporting both display and touch functions. By activating individual ones of the light emitting elements and specific ones of the light detecting devices, one can determine the location of a touch within the information display area I. More particularly, by sequentially activating the light emitting devices $E_{1,1}$-$E_{1,N}$ along a first side L_1 of the frame and activating the light detecting devices D_1 and D_2, one can monitor a first space A of the information display area I.

[**0015**] Similarly, by activating the light emitting devices $E_{2,1}$-$E_{2,N}$ along a second side L_2 of the frame and activating the light detecting devices D_2 and D_3, one can monitor a second space B of the information display area I. Similarly, by activating the light emitting devices $E_{3,1}$-$E_{3,N}$ along a third side L_3 of the frame and activating the light detecting devices D_3 and D_4, one can monitor a third space C of the information display area I. Finally, by activating the light emitting devices $E_{4,1}$-$E_{4,N}$ along a fourth side of the frame and activating the light detecting devices D_4 and D_1, one can monitor a fourth space D of the information display area I.

[**0016**] Alternately, a course scan/fine scan approach can be implemented. In a touch detect mode, sequential blocks of light emitting elements may be activated to approximately locate a touch. Once the approximate location of a touch is determined a more precise location can be measured by sequential activation of a limited segment of individual light emitting elements determined by the approximate location determination.

[**0017**] By implementing an algorithm, e.g. based on the equations presented in Japanese Patent Application No. 59-115205 (Laid Open No. 60-257304), that converts the direct polar readings observed by the detectors to x, y coordinates, one can discern the location of a touch within the information display area I.

[**0018**] The foregoing detailed description of the invention includes passages which are chiefly or exclusively concerned with particular parts or aspects of the invention. It is to be understood that this is for clarity and convenience, that a particular feature may be relevant in more than just the passage in which it is disclosed, and that the disclosure herein includes all the appropriate combinations of information found in the different passages. Similarly, although the various figures and descriptions thereof relate to specific embodiments of the invention, it is to be understood that where a specific feature is disclosed in the context of a particular figure, such feature can also be used, to the extend appropriate, in the context of another figure, in combination with another feature, or in the invention in general.

[**0019**] It will be understood that the above-described arrangements of apparatus are merely illustrative of applications of the principles of this invention and many other embodiments and modifications may be made without departing from the spirit and scope of the invention as defined in the claims.

What is claimed is:

1. A touch input system, comprising:

a frame having a first pair of opposed sides positioned parallel to a first axis and a second pair of opposed sides positioned parallel to a second axis, the second axis being perpendicular to the first axis, each of the second pair of sides connecting the first pair of sides, all four sides defining a generally rectangular touch input area;

a linear array of light emitting devices along each side; and

a light detection device positioned at each corner of the frame.

2. The touch input system of claim 1, wherein each array of light emitting devices are sequentially activated and the light detection devices positioned at corners opposed to the activated linear array are activated to detect a touch within the touch input area.

3. The touch input system of claim 2, wherein each light emitting device within each array of light emitting devices is sequentially activated.

4. The touch input system of claim 1, wherein polar readings are used to define a touch location within the touch input area.

5. The touch input system of claim 2, wherein the activated light detection devices detect a touch within a quadrant of the touch input area.

6. The touch input system of claim 5, wherein the quadrant is defined as an isosceles triangle having the side of the frame with the activated light emitting devices as a base.

7. The touch input system of claim 1, wherein the light emitting devices are light emitting diodes.

8. The touch input system of claim 1, wherein the light emitting devices are organic light emitting devices and further comprising a light transmissive prism positioned along each array of light emitting devices such that light emitted from the light emitting devices is directed across the touch input area towards opposed light detection devices.

9. A touch input system, comprising:

a touch screen comprising

a frame having a first pair of opposed sides positioned parallel to a first axis and a second pair of opposed sides positioned parallel to a second axis, the second axis being perpendicular to the first axis, each of the second pair of sides connecting the first pair of sides, all four sides defining a generally rectangular touch input area;

a linear array of light emitting devices along each side; and

a light detection device positioned at each corner of the frame; and